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ABSTRACT

Information has been lacking as to what characterizes families who show low nutritional knowledge regarding proper foods for their diets, and what characterizes those families who tend to increase in knowledge the most as a result of the Expanded Food and Nutrition Extension Program. This study provides such information. Its purpose was to determine the influence of selected personal and family characteristics of homemakers enrolled in the program on change in their knowledge of the four food groups. The population included homemakers enrolled at least six months in the program, from 10 original program counties; a total of 397 families were included in the study. Data were obtained from family record forms secured from the Extension offices. A five-page summary of the findings is presented, and a three-page table summarizes significant relations between homemakers' knowledge of foods in each group and each independent variable. (AJ)

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A Research Summary of a Graduate Study

INCREASE IN KNOWLEDGE OF HOMEMAKERS PARTICIPATING IN EXTENSION'S EXPANDED FOOD AND NUTRITION PROGRAM IN SELECTED TENNESSEE COUNTIES, 1973

by

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INCREASE IN KNOWLEDGE OF HOMEMAKERS PARTICIPATING IN EXTENSION'S EXPANDED FOOD AND NUTRITION PROGRAM IN SELECTED TENNESSEE COUNTIES, 1973

by

Mary Louise Horton

August 1973*

ABSTRACT

The purpose of this study was to determine the influence of selected personal and family characteristics of homemakers enrolled in the Tennessee Expanded Food and Nutrition Extension Program upon the change in their knowledge of the four food groups.

The population studied included Tennessee homemakers enrolled at least six months in the Expanded Food and Nutrition Extension Program. Only homemakers from the ten original program counties were included. These counties were: Roane, Hawkins, Putnam, DeKalb, Warren, Coffee, Robertson, Davidson, Shelby, and Gibson. The counties were fairly evenly distributed across the state and, at the time of the study, represented approximately 73 percent of the total number of participant families in Tennessee.

A total of 397 participant families were included in the study. This represented a 5 percent sample from each of the ten original counties.

Data were recorded from two family record forms secured from the Extension offices of the ten original program counties. Data on personal

*Date of completion of an M.S. degree thesis by Mary Louise Horton on which this research summary is based.

and family characteristics of the homemakers were secured from the Family Record, Part I. (See Appendix). Data concerning homemakers' knowledge of the four food groups were taken from Family Record, Part 2, which was originally obtained when each family first entered the program and again at the end of each six-months period thereafter. The initial and latest records were used to determine change in homemakers' knowledge of the four food groups.

Computations were made by The University of Tennessee Computing Center. A contingency table analysis program was used to determine the relationship between homemakers' knowledge of food needed for good health and each of the 24 independent variables. The program computed two-way tables consisting of column, row, and entire table percentages and frequencies. The statistical output of this program included chi square with degrees of freedom. Chi square values achieving the .05 level of probability were accepted as significant.

Major findings of this study were:

1. Increases in knowledge of food in the milk, meat, bread/cereals groups from first to latest recall were greater among those of rural residence than among those of farm residence. For the fruit-vegetable food group, homemakers' increase in knowledge was greater among farm residents.

2. Increases in knowledge of food in the meat, fruit/vegetables and bread/cereals groups from first to latest recall were greater among white homemakers; while the black homemakers had the largest increase in knowledge of the milk food group.

3. Increase in knowledge of food in the milk group from first to latest recall was greater among those in the 35-64 years of age group; while the under 35 years of age group had a slightly greater increase in knowledge of food in the meat group.

4. Increases in knowledge of milk, meat, bread/cereals, and fruit/vegetables groups from first to latest recall were greater among those with less than eight years formal education than among those with eight and over years of formal education.

5. Increases in knowledge of food in meat, bread/cereals, and fruit/vegetable groups from first to latest recall were greater among those with two or more years on the program than among those with less than two years. For the milk group, homemakers' increase in knowledge was greater among those with less than two years on the program.

6. Increases in knowledge of food in milk and meat groups from first to latest recall were greater among those in the $1000-2999 income group than among those below. On the other hand, for the fruit/vegetable and bread/cereals group, homemakers' increases in knowledge were greater among those in the under $1000 group.

7. Increases in knowledge of food in milk, meat, and fruit/vegetables groups from first to latest recall were greater among homemakers who also made the most improvement in the adequacy of their diet food intake.

8. Increases in knowledge of food in milk and meat groups were greater among those who had had more than one program assistant than among those with only one program assistant. For the fruit/vegetables and bread/cereals groups, homemakers' increases in food knowledge were greater among those who had not had more than one program assistant.

Implications and recommendations also were included.

RESEARCH SUMMARY*

I. INTRODUCTION

Extension-type programs historically have been concerned with knowledge families have of food to keep healthy even before the Cooperative Extension Service was officially established by the Smith-Lever Act of 1914.

Family living programs were developed to teach homemakers to improve the health of their families by planning, producing, preparing, and preserving foods for a nutritious diet on a year-round basis (18:9).**

Improvement of knowledge of diets has been and remains to be a primary objective of Extension nutrition education. Even though there have been some major accomplishments, it has become obvious over the past decade that many of the neediest families were not being reached.

The American people were shocked by the finding of the Citizens' Board of Inquiry into Hunger and Malnutrition in 1968 (3:). Many could not believe that such widespread deprivation and hunger could exist in this, the wealthiest nation of the world.

It then had become obvious that new methods had to be sought to improve nutrition among low-income families. There was a recognized need

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**Numbers in parentheses refer to similarly numbered items in the Bibliography; those after the colon are page numbers.

for nutrition education programs for those at all income levels. However, lack of knowledge has worked special hardships for the poor because their family food budgets offer so little leeway for making mistakes or unwise expenditures (9:130).

During November of 1964, the Federal Extension Service cooperating with the Alabama Extension Service initiated a pilot program using paraprofessionals to teach nutrition to low-income homemakers in four counties (16:473).

The pilot effort proved to be very successful and the Expanded Food and Nutrition Education Program (EFNEP) quickly was initiated and became established in other states by Executive Order in 1968.

By 1969, the program came into existence in all 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands, and had become a regular part of the Cooperative Extension Service.

Tennessee began the program in 1968. The program was initiated in ten pilot counties. The following year ten more counties were added to the program and in 1971 the program expanded by an additional 20 counties. Thus, in 1973 the total state counties participating in EFNEP was 40.

II. NEED FOR THE STUDY

As stated in one of the early national evaluations of the Expanded Food and Nutrition Education Program, there has been ample evidence that the educational objectives were being met. However, it is noted, there is a continuing need for better evidence of success on which to base more precise allocation of Extension staff effort (4:3).

The report goes on to say that, because of the program's limited resources, it is essential that extra efforts be applied to families with the greatest need (4:19).

Program guidelines suggest that the program should work with the hard-to-reach, low-income families, but it has been difficult to identify those families with the greatest needs. Information has been lacking as to what characterizes families who show low nutritional knowledge regarding proper foods for their diets, and what characterizes those families who tend to increase in knowledge the most as a result of the EFNEP program.

This information should be valuable to Tennessee state nutrition specialists, trainer agents, and program assistants for use in the determination of future program direction.

III. STATEMENT OF THE PROBLEM

Prior to this study, no formal attempt had been made in Tennessee to compare data related to knowledge level of EFNEP family participants to other data collected and analyzed on a statewide basis. Current data from national and state program evaluations were only available in frequency-count form from a computer printout, including such information as the number of homemakers who mentioned milk in the United States and by state, the number of urban homemakers in the United States and by state, etc.

Prior to the present study, no known effort had been made, using data from the existing reporting system (periodic unit reports), to relate

participant family knowledge of foods and their other characteristics, for example, place of residence. For this reason this study was designed.

IV. PURPOSE OF THE STUDY

The purpose of this study was to determine the relationship between homemakers' knowledge of the four food groups and their personal and family characteristics. This study also was designed to determine change in homemakers' knowledge of the food groups from initial to latest food recall.

Specific Objective

1. To determine the relationship between homemakers' knowledge of the four food groups and their personal characteristics.
2. To determine the relationship between homemakers' knowledge of the four food groups and their family characteristics.
3. To determine the relationship between homemakers' knowledge of the four food groups and types of assistance received by their families.
4. To determine the change in homemakers' knowledge of the four food groups from the initial to the latest food recall.

V. METHODS OF PROCEDURES

The Population

The population included all homemakers in the Expanded Food and Nutrition Education Program (EFNEP), from the ten original program counties who had been participants for at least six months as of October, 1971, when the data were collected. The ten original Expanded Food and Nutrition

Education Program counties in Tennessee were: Roane, Hawkins, Putnam, DeKalb, Warren, Coffee, Robertson, Davidson, Shelby, and Gibson. The counties were fairly evenly distributed across the state and, at the time of the study represented approximately 73 percent of the total number of participant families in Tennessee.

The Sample

The sample included 397 participant families, which represented a 5 percent random sample from each of the ten original counties. It should be kept in mind that the sample study was representative only of program families in the ten original counties and not necessarily the entire state.

The Data

The data were collected in 1971, for an earlier study made by Reginald William Seiders, II. Data on personal and family characteristics of the homemakers were secured from Family Record Part I (See Appendix). Individual family record forms were sent from each county Extension office to the State Extension Office for recording. Data concerning homemaker's knowledge of the four food groups were taken from Family Record Part II which was originally obtained when each family first entered the program and again at the end of each six-months period thereafter. The initial and latest records were used to determine change in homemakers' knowledge of the four food groups.

VI. SUMMARY OF FINDINGS

Homemakers' Knowledge of Food Needed to Keep Healthy and Their Personal Characteristics

Place of residence. Increases in knowledge of food in the milk, meat, bread/cereals groups from first to latest recall were greater among those of rural residence than among those of farm residence. For the fruit/vegetables food group, increase in knowledge was greater among farm residents.

Race. Increases in knowledge of food in the meat, fruit/vegetables and bread/cereals groups from first to latest food recall were greater among white homemakers; while the black homemakers had the largest increase in knowledge of the milk food group.

Age of homemakers. Increase in knowledge of food in the milk group from first to latest recall was greater among those in the 35-64 years of age group; while the under 35 years of age group had a slightly greater increase in knowledge of food in the meat group.

Education of homemaker. Increases in knowledge of milk, meat, bread/cereals, and fruit/vegetables groups from first to latest recall were greater among those with less than eight years of formal education than among those with eight and over years of formal education.

Time in program. Increases in knowledge of food in meat, bread/cereals, and fruit/vegetables groups from first to latest recall were greater among those with two or more years on the program than among those with less than two years on the program. For the milk group,

homemakers' increase in knowledge was greater among those with less than two years in the program.

Income. Increases in knowledge of food in milk and meat groups from first to latest recall were greater among those in the $1000-2999 income group than among those below. On the other hand, for the fruit/vegetables and bread/cereals groups increases in homemakers' knowledge were greater among those in the under $1000 group.

Level of living. Increases in knowledge of food in milk and bread/cereals groups from first to latest recall were greater among those in the high level of living category than among those of the low level of living. For the fruit/vegetable food group, homemakers' increase in knowledge was greater among those in the low level of living.

Home ownership. Increase in knowledge of food in milk, bread/cereals and fruit/vegetables groups from first to latest recall were greater among those who rented their homes than among those who owned their homes. For the meat food group, increase in knowledge was greater among those who owned their homes than among those who rented their homes.

Homemakers' Knowledge of Foods Needed to Keep Healthy and Their Family Characteristics

Number family members. Increase in knowledge of food in the milk group from first to latest recall was greater among those with one or two family members than among those with five or more. For the meat and fruit/vegetables group homemakers' increse in food knowledge was greater among those with three or four family members than with those with one or two

or five family members. For the bread/cereals group, homemakers' increase in food knowledge was greater among those with five or more family members.

Children under 15. Increases in knowledge of food in milk, fruit/vegetables and bread/cereals groups from first to latest recall were greater among those with no family member under 15 years of age than among those with one or more family members under 15 years of age. For the meat group, homemakers' increase in food knowledge was greater among those having children under 15 years of age than among those not having them under 15 years of age.

Number of children in school. Increases in knowledge of food in milk, fruit/vegetables and bread/cereals groups from first to latest recall were greater among those with no children in school than among those with children in school. For the meat group, homemakers' increase in food knowledge was greater among those with one or more children in school.

Children receiving school lunch. Increases in knowledge of food in milk and bread/cereals groups from first to latest food recall were greater among those with no children on the school lunch program than among those with children on the school lunch program. For the meat and fruit/vegetables group, homemakers' increases in food knowledge were greater among those with one or more children on the school lunch program.

Homemakers' Knowledge of Foods Needed to Keep Healthy and Assistance Received by Their Families

USDA food program available. Increases in knowledge of food in milk, meat, fruit/vegetable and bread/cereals groups from first to latest recall were greater among those on donated food than among those on food stamps.

Where most food purchased. Increases in knowledge of food in milk, meat, fruit/vegetables, and bread/cereals groups from first to latest recall were greater among those who purchased food from other food stores than among those who purchased from super markets.

Family monthly income. Increases in knowledge of food in meat, fruit/vegetables, and bread/cereals groups from first to latest recall were greater among those in the $0-151 per month income group than among those in the $251 per month income group. For the milk group, homemakers' increase in food knowledge was greater among those in the $151-250 per month income group.

Family monthly food cost. Increases in knowledge of food in milk, meat, fruit/vegetables and bread/cereals groups from first to latest recall were greater among those under a mean of $58 per month food cost than among those above this mean.

Percent of monthly family income spent for food. Increases in knowledge of food in milk and fruit/vegetables groups from first to latest recall were greater among those spending 26-40 percent of the family income each month for food than among the 25 percent or below group. For the meat group, homemakers' increase in food knowledge was greater among those spending more than 40 percent. For the bread/cereals group, homemakers increase in food knowledge was greater among those spending under 25 percent of their monthly family income for food.

Servings of milk. Increases in knowledge of food in milk, fruit/vegetables and bread/cereals groups from first to latest recall were greater among those with inadequate servings of milk than among those with adequate servings. For the meat group, homemakers' increase in

food knowledge was greater among those who also had adequate consumption of milk.

Servings of bread/cereals. Increases in knowledge of food in meat, bread/cereals, and fruit/vegetables groups from first to latest recall were greater among those with inadequate servings of bread than among those who had adequate servings from the bread group.

Servings of meat. Increases in knowledge of food in milk and fruit/vegetables groups from first to latest recall were greater among those who had adequate servings from the meat group than among those with inadequate servings.

Servings of vegetables. Increases in knowledte of food in the milk, and meat groups from first to latest recall were greater among those with adequate servings from the vegetables group than among those with inadequate servings.

Adequacy of diet score. Increases in knowledge of food in milk, meat and fruit/vegetables groups from first to latest recall were greater among those who had higher total scores on adequacy of their diet.

Increase in diet score. Increases in knowledge of food in milk, meat and bread/cereals groups from first to latest recall were greater among those with greater increase in diet improvement scores.

Had more than one program assistant. Increases in knowledge of food in milk and meat groups were greater among those who had had more than one program assistant than among those with only one program assistant. For the fruit/vegetables and bread/cereals group, increases in homemakers' food knowledge were greater among those who had not had more than one program assistant.

Table I summarizes the significant ($p<.05$) relationships between homemakers' knowledge of each of the food groups at first and latest recall and each independent variable included in this study.

Implications and recommendations for further study were also included in the thesis.

TABLE I

SUMMARY OF SIGNIFICANT ($P < .05$) RELATIONS BETWEEN HOMEMAKERS' KNOWLEDGE OF FOODS IN EACH FOOD GROUP AND EACH INDEPENDENT VARIABLE

Factor	Milk		Meat		Fruit/ Vegetables		Bread/Cereals		All Four Food Groups	
	First	Latest	First	Latest	First	Latest	First	Latest	First	Latest
Place of residence		*	*		*	*	*			
Race		*	*	*	*	*	*		*	*
Age	*									*
Education	*				*					
Length of time in program								*		*
Family income		*	*		*		*		*	
Level of family living index			*	*				*		*
Home ownership									*	
Number of family members	*	*		*						
Families with and without children	*	*							*	
Number of children	*									

TABLE I (continued)

Factor	Milk		Meat		Fruit/ Vegetables		Bread/Cereals		All Four Food Groups	
	First	Latest	First	Latest	First	Latest	First	Latest	First	Latest
Children receiving school lunches	*									
Type of USDA food program					*					
Place where family purchased foods	*		*		*				*	
Monthly family income	*			*	*		*		*	
Monthly family food cost	*		*	*	*		*		*	
Percent of family income spent for food	*	*						*		*
Adequacy of homemakers' milk diet	*								*	
Adequacy of homemakers' bread diet						*				
Adequacy of homemakers' meat diet		*		*		*				
Adequacy of homemakers' fruit/vegetable diet	*	*								*

TABLE I (continued)

Factor	Milk		Meat		Fruit/ Vegetables		Bread/Cereals		All Four Food Groups	
	First	Latest	First	Latest	First	Latest	First	Latest	First	Latest
Adequacy of homemakers' diet score (four food groups)		*				*	*	*		*
Improvement in homemakers' diet score		*			*	*				
Number of program assistants worked with family								*		

*Chi square value achieved at least the .05 probability level.

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